

SUSPENSION AND STEERING

For every task in Suspension and Steering, the following safety requirement must be strictly enforced:

Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

IV. SUSPENSION AND STEERING

A. General Suspension and Steering Systems Diagnosis

1. Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. P-1
2. Identify and interpret suspension and steering system concerns; determine necessary action. P-1
3. Research applicable vehicle and service information, such as suspension and steering system operation, vehicle service history, service precautions, and technical service bulletins. P-1
4. Locate and interpret vehicle and major component identification numbers. P-1

IV. SUSPENSION AND STEERING

B. Steering Systems Diagnosis and Repair

1. Disable and enable supplemental restraint system (SRS). P-1
2. Remove and replace steering wheel; center/time supplemental restraint system (SRS) coil (clock spring). P-1
3. Diagnose steering column noises, looseness, and binding concerns (including tilt mechanisms); determine necessary action. P-2
4. Diagnose power steering gear (non-rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary action. P-2
5. Diagnose power steering gear (rack and pinion) binding, uneven turning effort, looseness, hard steering, and noise concerns; determine necessary P-2

action.

6. Inspect steering shaft universal-joint(s), flexible coupling(s), collapsible column, lock cylinder mechanism, and steering wheel; perform necessary action. P-2
7. Adjust non-rack and pinion worm bearing preload and sector lash. P-3
8. Remove and replace rack and pinion steering gear; inspect mounting bushings and brackets. P-2
9. Inspect and replace rack and pinion steering gear inner tie rod ends (sockets) and bellows boots. P-2
10. Determine proper power steering fluid type; inspect fluid level and condition. P-1
11. Flush, fill, and bleed power steering system. P-2
12. Diagnose power steering fluid leakage; determine necessary action. P-2
13. Remove, inspect, replace, and adjust power steering pump belt. P-1
14. Remove and reinstall power steering pump. P-2
15. Remove and reinstall press fit power steering pump pulley; check pulley and belt alignment. P-2
16. Inspect and replace power steering hoses and fittings. P-2
17. Inspect and replace pitman arm, relay (centerlink/intermediate) rod, idler arm and mountings, and steering linkage damper. P-2
18. Inspect, replace, and adjust tie rod ends (sockets), tie rod sleeves, and clamps. P-1
19. Test and diagnose components of electronically controlled steering systems using a scan tool; determine necessary action. P-3
20. Inspect and test electric power assist steering. P-3
21. Identify hybrid vehicle power steering system electrical circuits, service and safety precautions. P-3

IV. SUSPENSION AND STEERING

C. Suspension Systems Diagnosis and Repair

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| 1. | Diagnose short and long arm suspension system noises, body sway, and uneven ride height concerns; determine necessary action. | P-1 |
| 2. | Diagnose strut suspension system noises, body sway, and uneven ride height concerns; determine necessary action. | P-1 |
| 3. | Remove, inspect, and install upper and lower control arms, bushings, shafts, and rebound bumpers. | P-2 |
| 4. | Remove, inspect and install strut rods and bushings. | P-2 |
| 5. | Remove, inspect, and install upper and/or lower ball joints. | P-1 |
| 6. | Remove, inspect, and install steering knuckle assemblies. | P-2 |
| 7. | Remove, inspect, and install short and long arm suspension system coil springs and spring insulators. | P-3 |
| 8. | Remove, inspect, install, and adjust suspension system torsion bars; inspect mounts. | P-3 |
| 9. | Remove, inspect, and install stabilizer bar bushings, brackets, and links. | P-2 |
| 10. | Remove, inspect, and install strut cartridge or assembly, strut coil spring, insulators (silencers), and upper strut bearing mount. | P-1 |
| 11. | Remove, inspect, and install leaf springs, leaf spring insulators (silencers), shackles, brackets, bushings, and mounts. | P-3 |

D. Related Suspension and Steering Service

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| 1. | Inspect, remove, and replace shock absorbers. | P-1 |
| 2. | Remove, inspect, and service or replace front and rear wheel bearings. | P-1 |
| 3. | Test and diagnose components of electronically controlled suspension systems using a scan tool; determine necessary action. | P-3 |

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| 4. | Diagnose, inspect, adjust, repair or replace components of electronically controlled steering systems (including sensors, switches, and actuators); initialize system as required. | P-3 |
| 5. | Describe the function of the idle speed compensation switch. | P-3 |
| 6. | Lubricate suspension and steering systems. | P-2 |

IV. SUSPENSION AND STEERING

E. Wheel Alignment Diagnosis, Adjustment, and Repair

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| 1. | Diagnose vehicle wander, drift, pull, hard steering, bump steer, memory steer, torque steer, and steering return concerns; determine necessary action. | P-1 |
| 2. | Perform prealignment inspection and measure vehicle ride height; perform necessary action. | P-1 |
| 3. | Prepare vehicle for wheel alignment on the alignment machine; perform four wheel alignment by checking and adjusting front and rear wheel caster, camber; and toe as required; center steering wheel. | P-1 |
| 4. | Check toe-out-on-turns (turning radius); determine necessary action. | P-2 |
| 5. | Check SAI (steering axis inclination) and included angle; determine necessary action. | P-2 |
| 6. | Check rear wheel thrust angle; determine necessary action. | P-1 |
| 7. | Check for front wheel setback; determine necessary action. | P-2 |
| 8. | Check front and/or rear cradle (subframe) alignment; determine necessary action. | P-3 |

IV. SUSPENSION AND STEERING

F. Wheel and Tire Diagnosis and Repair

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| 1. | Inspect tire condition; identify tire wear patterns; check and adjust air pressure; determine necessary action. | P-1 |
| 2. | Diagnose wheel/tire vibration, shimmy, and noise; determine necessary action. | P-2 |

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| 3. | Rotate tires according to manufacturer's recommendations. | P-1 |
| 4. | Measure wheel, tire, axle flange, and hub runout; determine necessary action. | P-2 |
| 5. | Diagnose tire pull problems; determine necessary action. | P-2 |
| 6. | Dismount, inspect, and remount tire on wheel; Balance wheel and tire assembly (static and dynamic). | P-1 |
| 7. | Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor. | P-2 |
| 8. | Reinstall wheel; torque lug nuts. | P-1 |
| 9. | Inspect tire and wheel assembly for air loss; perform necessary action. | P-1 |
| 10. | Repair tire using internal patch. | P-1 |
| 11. | Inspect, diagnose, and calibrate tire pressure monitoring system. | P-2 |

BRAKES

For every task in Brakes, the following safety requirement must be strictly enforced:

Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

V. BRAKES

A. General Brake Systems Diagnosis

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| 1. | Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction. | P-1 |
| 2. | Identify and interpret brake system concern; determine necessary action. | P-1 |
| 3. | Research applicable vehicle and service information, such as brake system operation, vehicle service history, service precautions, and technical service bulletins. | P-1 |